IN THE SPECIFICATION

[14] The electronic package 100 provides a ~~virtually~~ virtual interface for data flow from the central computer 107 to more remote areas, such as the remote device terminals 106. Rather than providing a bus repeater and a remote terminal that are separate and independent within the package and providing each with its own transceiver and coupling transformer like currently-known systems complying with design standards (e.g., Mil-Std-1553), the inventive system combines a bus repeater and remote terminal into a single integrated interface 108. This integrated interface 108 allows the functions of both a bus repeater 110 and a remote terminal interface 112 (Figure 2) to be carried out using only two transceivers/isolation transformers 114/115, 116/117 and two associated coupling transformers 118, 120, one transceiver 114 and coupling transformer 118 on the main bus 102 side and one transceiver 116 and coupling transformer 120 on the extended bus side of the bus repeater 110. As shown in Figure 2, the isolation transformers 115, 117 are part of the electronic package 100 while the coupling transformers 118, 120 act as bus connections. This structure therefore eliminates the need to provide a separate transceiver, isolation transformer and coupling transformer specifically for the remote terminal interface 112 alone.

[15] Signals from the central computer 107 can therefore travel between the main bus 102, the extended bus 104, and the remote terminals 106 via the bus repeater portion 110 through the integrated interface 108. At the same time, the remote terminal interface portion 112 of the integrated interface 108 can tap data from the bus repeater 110 portion for operation of the electronic device 100.

[16] In one embodiment, the analog data from the buses 102, 104 are converted into digital data by the bus repeater portion 110 by analog-to-digital conversion circuitry in the transceivers 114, 116. The remote terminal interface portion 112 can then simply tap off the digital data from the bus repeater portion 110 directly rather than having to conduct its own separate conversion of analog data obtained from either bus 102, 104. Similarly, digital data from the remote terminal interface 112 and the bus repeater 110 can both be converted by digital-to-analog conversion

circuitry in the transceivers 114, 116. By combining the bus repeater 110 and the remote terminal interface 112 functions into a single integrated interface 108, the remote terminal interface 112 in the interface can simply transmit and receive already-converted digital data to and from the bus repeater 110 without conducting its own analog-to-digital conversion.

[17] Figure 2 illustrates the electronic package 100 in greater detail. As noted above, the electronic package 100 includes an integrated interface 108 that includes a bus repeater portion 110 and a remote terminal interface portion 112. As shown in Figure 2, the bus repeater 110 and remote terminal interface 112 send digital signals to and from each other directly, allowing the remote terminal interface 112 to monitor the bus repeater 110 communication traffic operation in real time if desired. Because the signals going through the bus repeater 110 are already converted into digital data, the remote terminal interface 112 can tap directly into the bus repeater 110 to obtain the digital data without having to obtain and convert data from the extended bus 104 on its own. Thus, the remote terminal interface 112 in the electronic package 100 can rely on the bus repeater 110 to supply it with data and does not need its own transceiver or isolation/coupling transformers, reducing the total number of parts in the electronic package 100. This single chip solution will require fewer components in the system, reduce power consumption, reduce data delay and data latency and also improves overall system reliability.